

**REMARKS**

**A. Status of the Claims**

In the Official Action dated September 2, 2004, Applicants' claim amendments were not entered and the Request for Continued Examination was treated as a proper RCE under MPEP § 706.07(h)VI(B), which states:

If an RCE is filed with an amendment canceling all claims drawn to the elected invention and presenting only claims drawn to a nonelected invention, the RCE should be treated as a proper RCE but the amendment should not be entered.

In response to the Official Action dated September 2, 2004 and the Official Action dated March 19, 2004, claims 2-4, 6-8, 10-25, and 28-77 are herein canceled without prejudice to future prosecution and claims 1 and 26 are amended. Therefore, claims 1, 5, 9, 26-27, and 78 are pending after entry of this amendment.

**B. Support for the Amendments**

Claims 1 and 26 now recite that "-L<sup>3</sup>-Z is an optionally protected amino acid side chain selected from the group consisting of lysine side chain, cysteine side chain, serine side chain, aspartic acid side chain, glutamic acid side chain, and threonine side chain." Support for this amendment may be found, for example, at page 23, lines 27-29 (stating "the pendent group -L<sup>3</sup>-Z can be the functionalized side chain of an amino acid (e.g, a *serine side chain, an aspartic acid side chain, and the like*)" (emphasis added)); in claim 11 as filed (reciting "-L<sup>3</sup>-Z is an amino acid side chain having a pendant reactive group, said amino acid selected from the group consisting of *lysine, cysteine, serine, aspartic acid, glutamic acid, and threonine*" (emphasis added); at page 31, lines 31-32 (stating "[f]unctional group Z is a reactive group which can form a covalent link to another molecule, label or support, and *which is optionally protected*" (emphasis added)); at page 23, lines 19-21 (stating "the core component is the residue of an amino acid having a reactive functional group in the side chain (e.g., lysine, serine, aspartic acid , glutamic acid, cysteine and the like)").

Claims 1 and 26 have been amended to specify that the photoactivatable covalent crosslinking group "is a member selected from the group consisting of aryl ketones, azides, diazo compounds, diazirenes, and ketenes." Support for this amendment may be found, for example, in claim 10 as filed (stating "Y is a member selected from the group consisting of aryl ketones, azides, diazo compounds, diazirenes, and ketenes"); at page 31, lines 1-3 (stating "[e]xamples of groups capable of forming free radicals in response to ultraviolet or visible light include, for example, aryl ketones, azides, diazo compounds, diazirenes, and ketenes"); and at page 31, lines 5 to 30 (describing the classes of photoactivatable covalent crosslinking groups).

Therefore, no new matter is added with this amendment.

**C. The presently amended claims are drawn to the elected invention**

In the Official Action dated September 2, 2004, the Examiner did not enter Applicants' claim amendments because the amended claims were allegedly not drawn to the elected invention. In response, Applicants submit the presently amended claims which are drawn to the elected invention.

In Applicants' Response to Restriction Requirement filed January 21, 2003, Group I (Claims 1-13, 24, 26, 27, 29, 31, and 34), drawn to heterofunctional crosslinking reagents and conjugates, was elected for prosecution on the merits. Included in Group I was original claim 11, which recites:

A heterofunctional crosslinking reagent of claim 1, wherein Z-L<sup>3</sup>- is an amino acid side chain having a pendant reactive group, wherein said amino acid is selected from the group consisting of *lysine, cysteine, serine, aspartic acid, glutamic acid and threonine* (emphasis added).

Like original claim 11, amended claim 1 encompasses a heterofunctional crosslinking reagent wherein -L<sup>3</sup>-Z is an amino acid side chain selected from the group consisting of lysine side chain, cysteine side chain, serine side chain, aspartic acid side chain, glutamic acid side chain, and threonine side chain. Therefore, Applicants respectfully submit that the heterofunctional crosslinker of currently amended claim 1 falls squarely within the originally elected Group I.

Lysine             $\text{---}(\text{CH}_2\text{---CH}_2\text{---CH}_2\text{---CH}_2)\text{NH}_2$   
Serine              $\text{---}(\text{CH}_2)\text{OH}$   
Cysteine           $\text{---}(\text{CH}_2)\text{SH}$   
Aspartic Acid     $\text{---}(\text{CH}_2)\text{COOH}$   
Glutamic Acid    $\text{---}(\text{CH}_2\text{---CH}_2)\text{COOH}$   
Threonine          $\text{---}(\text{CH}_2)\text{OH}$   
                             $\quad \mid$   
                             $\quad \text{CH}_3$

While the L<sup>3</sup> portions of serine, aspartic acid, and cysteine are a C<sub>1</sub> alkylene, Applicants respectfully submit that a C<sub>1</sub> alkylene linker is not separately patentable (and, therefore, not distinct) from a C<sub>2</sub> alkylene linker. Courts have repeatedly held that adjacent members of a homologous series are *prima facie* obvious. See *Brenner v. Manson*, 148 USPQ 689 (U.S. Sup. Ct. 1966), stating: "Chemists knowing the properties of one member of a series would in general know what to expect in adjacent members." See also *In re Dillon*, 16 USPQ2d, 1897 (Fed. Cir. 1990); *In re Henze*, 85 USPQ 261 (CCPA 1950); and *In re Hass*, 60 USPQ 43 (CCPA 1963). Therefore, the L<sup>3</sup> portions of serine, aspartic acid, and cysteine are not distinct from an L<sup>3</sup> linker having "a substituted or unsubstituted (C<sub>2</sub>-C<sub>24</sub>) alkylene group."

In sum, Applicants submit that the heterofunctional crosslinker of currently amended claim 1 falls squarely within the originally elected Group I. Moreover, the L<sup>3</sup> portions of lysine, glutamatic acid, serine, aspartic acid, cysteine and threonine are not distinct from the L<sup>3</sup> linker encompassed by claim 1 at the time of final rejection, which includes "a substituted or unsubstituted C<sub>2</sub>-C<sub>24</sub> alkylene group." Therefore, Applicants respectfully request entry of the present amendments.

**D. Rejection under 35 U.S.C. § 112, first paragraph: "[A]t or adjacent to said protein tag"**

In the Official Action dated March 19, 2004, claims 1, 5, 9, 10, 12, 24, 26, 29, 31, 78 were rejected as failing to comply with the written description requirement for recitation of the phrase "said photoactivatable covalent crosslinking group covalently attached at or adjacent to said protein tag." Applicants respectfully disagree with the rejection.

The specification clearly describes Y as binding at or adjacent the protein tag. At page 2, lines 18-20, the specification states:

X is a specific protein tag binder which binds a protein at *a specific region or regions* within the protein...Y is an activatable, preferably photoactivatable, covalent crosslinking group adapted to link the heterofunctional crosslinker covalently at or adjacent *the specific region or regions* of the protein....

Thus, Y binds at or adjacent *the specific region or regions* of the protein to which the protein tag binder X binds.

One skilled in the art would immediately recognize that the term "*specific region or regions*" in the above passage encompasses protein tags because a protein tag binder is obviously capable of binding to a protein tag, which is nothing more than a specific region of a protein. The fact that a protein tag is, in fact, a specific region of a protein is confirmed within Applicants' specification, which defines a protein tag as "that *portion of a protein* which is bound by a particular protein tag binder." See page 20, line 31 to page 21, line 2.

Because the specification clearly states that Y binds at or adjacent *the specific region or regions* of the protein to which the protein tag binder X binds, one skilled in the art

would immediately recognize that Applicants were in possession of a photoactivatable covalent crosslinking group that binds at or near the protein tag.

**E. Rejection of Claims for Containing Allegedly Improper Markush Group**

In the Official Action dated March 19, 2004, claims 1, 5, 9, 10, 12, 24, 26, 27, 29, 31, and 78 were rejected as allegedly being drawn to an improper Markush group. The Examiner states that "the glycine residue *per se* is not an appropriate 'core component.'" See Examiner's Office Action mailed November 12, 2003, page 3, line 1. To support this point, the Examiner quotes the following passage in Applicants' specification:

Preferably, the core component is a residue of a moiety having at least three reactive groups which can be carboxyl, amino, hydroxyl, thiol, or the like. In one group of embodiments, the core component is the residue of an amino acid having a reactive functional group in the side chain (e.g., lysine, serine, aspartic acid, glutamic acid, cysteine and the like).

See page 23, lines 16-21.

Applicants have amended claim 1 and 26 to include a core component that is the residue of an amino acid having a reactive functional group in the side chain, as recited in the specification passage quoted above by the Examiner. Claim 1 and 26 now recite that "-L<sup>3</sup>-Z is an optionally protected amino acid side chain having a pendant reactive group, said reactive group selected from the group consisting of lysine, cysteine, serine, aspartic acid, glutamic acid, and threonine."

In light of the amendments to claims 1 and 26, Applicants respectfully request withdrawal of the rejection.

**F. Rejection under 35 U.S.C. § 112, first paragraph: Core component**

In the Official Action dated March 19, 2004, claims 1, 5, 9, 10, 12, 24, 26, 27, 29, 31, and 78 were rejected as failing to comply with the written description requirement for reciting a core component that is not described in the specification.

Applicants have amended the claims to include a core component that is the residue of an amino acid having a reactive functional group in the side chain, as recited in the

specification at page 23, lines 16-21. Claim 1 and 26 now recite that "-L<sup>3</sup>-Z is an optionally protected amino acid side chain having a pendant reactive group, said reactive group selected from the group consisting of lysine, cysteine, serine, aspartic acid, glutamic acid, and threonine."

In light of the amendments to claims 1 and 26, Applicants respectfully request withdrawal of the rejection.

**G. Rejection under 35 U.S.C. § 112, second paragraph: Y and Z**

In the Official Action dated March 19, 2004, claims 1, 5, 9, 10, 12, 24, 26, 27, 29, 31, and 78 were rejected under 35 U.S.C. §112, first paragraph as indefinite. The Examiner submits that the structure of Y and Z are unclear.

Applicants have amended claims 1 and 26 to recite specific structures for Y and Z. Claims 1 and 26 now recite that Z forms part of "an optionally protected amino acid side chain having a pendant reactive group, said reactive group selected from the group consisting of lysine, cysteine, serine, aspartic acid, glutamic acid, and threonine." In addition, claims 1 and 26 now recite that the photoactivatable covalent crosslinking group "is a member selected from the group consisting of aryl ketones, azides, diazo compounds, diazirenes, and ketenes."

In light of the amendments to claims 1 and 26, Applicants respectfully request withdrawal of the rejection.

Appl. No. 09/820,210  
Amdt. dated October 1, 2004  
Reply to Office Action of June 4, 2003

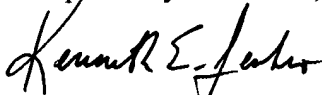
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**CONCLUSION**

In view of the foregoing, Applicants believe all claims now pending in this Application are in condition for allowance. The issuance of a formal Notice of Allowance at an early date is respectfully requested.

If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at 415-576-0200.

Respectfully submitted,



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